



(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
22.09.1999 Bulletin 1999/38

(51) Int. Cl.⁶: **B65D 75/58, B65D 75/00**

(21) Application number: **96304712.1**

(22) Date of filing: **26.06.1996**

(54) **Flexible liquid container and method of manufacturing same**

Flexibler Flüssigkeitsbehälter und Verfahren zu dessen Herstellung
Récipient souple pour liquides et son procédé de fabrication

(84) Designated Contracting States:
CH DE FR GB IT LI

(30) Priority: **28.06.1995 JP 16192895**

(43) Date of publication of application:
02.01.1997 Bulletin 1997/01

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US-A- 4 718 778

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Description

[0001] The present invention relates to a container and to a method of manufacturing the container.

[0002] A container to be filled with beverages such as a sportsdrink or orange juice is disclosed, for example, in Japanese Utility Model Application No. 62-134826. This container has a bag-shaped container body formed of a flexible film, and having gusset portions. A pipe-shaped delivery unit is joined to the container body such that a flange portion thereof is held at an end portion of an upper opening of the container body. The conduit portion of the delivery unit is inserted into the container body.

[0003] A container of this kind is lighter in weight, and can be opened more easily, than cans or bottles. Therefore, it can be used to store beverages and sauces for Japanese noodles or Korean-style barbecued meat instead of glass bottles and plastic containers.

[0004] The above described container is shown in FIGS. 13 and 14 and comprises a bag-shaped container body 1 having two gusset portions 4 (4a, 4b) folded inwardly and two flat portions 3 (3a, 3b), and a delivery unit 2 having a flange portion 12 and a conduit portion 13. The gusset portions 4a, 4b folded inwardly are respectively positioned on both sides of the body 1 so that they make a space S1, where the flange portion 12 of the delivery unit 2 is set, between both inward ends 15a, 15b at the upper end portion of the container body 1. The upper end portion and the flange portion 12 are integrally bonded to each other by means of heat sealing. The container formed in this manner has gaps S2 which are made between the flange portion 12 and each inward end 15a, 15b of the gusset portions.

[0005] In the above liquid container, however, the fact that the flange portion 12 of the delivery unit 2 is set in the space S1 between both inward ends 15a, 15b of the gusset portions results in that a horizontal section of the container body 1 is made rectangular and never regularly square, because whole size in width of the gusset portion 4 is narrower than that of the flat portion 3. Therefore, the liquid container is not stable in self-standing and frequently topples down when it is put on a shelf or the rack for displaying.

[0006] A similar container is disclosed in US-A-4,718,778 which container comprises a container body having a mouth opening, said container body being formed of a flexible material and comprising two wall portions, forming front and back walls, interconnected by two folded gusset portions forming side walls, and a delivery unit provided in said mouth opening and having a flange portion which acts as a joining portion between the delivery unit and the container body, wherein the mouth opening of said container body is sealed along top seal lines which extend from the joining portion outwardly.

[0007] It is an object of the present invention to provide a container as defined above which is highly stable

when self-standing.

[0008] According to the present invention, a container as defined above is characterised in that inward end portions of said gusset portions project inwardly of the container body and are interposed between the flange portion and the wall portions at the joining portion.

[0009] In an embodiment, the container has a bag-shaped container body formed of a flexible film, and a pipe-shaped delivery unit which has a mouth portion formed at an upper thereof and projecting out of the mouth opening of the container body.

[0010] Preferably, each of the gusset portions has a width which is approximately equal to that of the flat portion.

[0011] In an embodiment of a container of the invention, the flange portion of the delivery unit is arranged to overlap the inward end portions of the gusset portions. In this arrangement, each gusset portion may be deeply folded to shape a cross section of the container body into an approximately regular square thereby ensuring the container is stable when self-standing.

[0012] Preferably, said delivery unit comprises a conduit portion which is formed below the flange portion and extends inwardly of the container body.

[0013] In an embodiment, both of said inward end portions of the two gusset portions are disposed on the same side of the flange portion.

[0014] The delivery unit may slant towards the front or the back of the container, so that a user can put his lips easily onto the mouth of the delivery unit to drink the contents. Furthermore, indications or letters on the flat portion can be readily viewed by consumers if the top of the delivery unit slants to the rear to direct upwardly the upper portion of the front flat portion.

[0015] Oblique seal lines may be formed at four lower corner portions of the container body so as to extend obliquely across the flat portions from one side edge to the bottom edge thereof, and subsequently an outer portion beyond each oblique seal line and the bottom seal line may be cut off. In this manner, the resistance of the container body against the folding of the bottom edge portion may be reduced, so that the bottom portion is flattened easily and the stability when self-standing of the container is improved.

[0016] In an embodiment, said top seal lines seal the upper end portion of the container body. The top seal lines preferably have a width larger than that of a seal line forming the joining portion. An edge line of each transitive portion between a lower corner of the joining portion and a lower edge of the top seal line may extend substantially parallel to an axis of the container body. The strength of the gusset portions is generally increased by providing top seal lines with enlarged widths. Furthermore, since each transitive portion between the lower corner of the joining portion and the lower inner edge of the top seal line is extended substantially parallel to an axis of the container body, the pressure of the contents of the container which concen-

trates on the lower corners of the joining portion is decreased to improve the strength of this portion and to prevent pinholes and breakages of the container.

[0017] US-A-4,718,778 does not describe the manufacturing method for the container described therein.

[0018] The present invention also extends to a method of manufacturing a container having a flexible container body and a delivery unit, the method comprising the steps of:

folding and positioning two films for gusset portions of a container body between two superposed films for wall portions of the container body,
positioning a delivery unit between said two superposed films for the wall portions such that the delivery unit is positioned at a mouth opening of the container body, and
securing the films and the delivery unit together at predetermined portions thereof to form the container body and seal the mouth opening,
wherein each inner end portion, at which a folding line is formed, of each film for a gusset portion is interposed between a flange portion of the delivery unit and the film for a wall portion.

[0019] A manufacturing method of the invention makes it easy to position the films for the flat and gusset portions. Furthermore, the delivery unit and the films for any parts of the container body may be sealed under stable conditions because of the temporary bonding of the films for the gusset portions.

[0020] In an embodiment, each of the films for the gusset portions is temporarily secured to the films for the wall portion before positioning the delivery unit.

[0021] Preferably, in the manufacturing method, each of said two folded and positioned films for the gusset portions is temporarily secured to the film for the wall portion by heat sealing in a manner of pressing a seal bar onto the films so as to cross over the folding lines of the films for the gusset portions at an upper portion of the container body.

[0022] In an embodiment, said seal bar forms a seal portion which has a triangle recess at its centre portion on one side thereof, each edge of the recess crossing obliquely over the folding lines of the films for the gusset portions so that a sealing area of the seal portion is enlarged toward a direction of a side portion of the container body.

[0023] Embodiments of the method of the invention increase the productivity of manufacture of the containers and decrease the generation of defective containers because the inward end portions of the gusset portions do not collide with the delivery unit during the positioning thereof onto the gusset portions, and do not disturb the positioning of the delivery unit.

[0024] Where temporary bonding utilises the seal bar to form the seal portion having the triangle recess, the strength of the container against impact is increased by

a specific sealing area of the temporary bonding which corresponds to the above sealing surface of the seal bar.

FIG. 1 is a front view showing an embodiment of the liquid container according to the present invention. FIG. 2 is a perspective view of the liquid container showing a state that it is inflated according to the present invention shown in FIG. 1.

FIG. 3 is a front view showing a delivery unit of the liquid container according to the present invention shown in FIG. 1.

FIG. 4 is an explanatory view showing an inner constitution of the liquid container according to the present invention shown in FIG. 1.

FIGS. 5A and 5B are cross-sectional views schematically showing two embodiments of the joining portion for the delivery unit.

FIGS. 6A and 6B are views of another embodiment of the liquid container according to the present invention showing a state that it is inflated, in which FIG. 6A is a perspective view and FIG. 6B is a side view.

FIGS. 7A and 7B are views showing a bottom portion of the liquid container according to the present invention shown in FIG. 1.

FIG. 8 is a view showing an upper portion of the liquid container according to the present invention shown in FIG. 1.

FIG. 9 is a view showing a constitution of an embodiment of films to form the container body.

FIG. 10 is a flow diagram showing an embodiment of a manufacturing method according to the present invention.

FIG. 11 is a view showing an embodiment of the temporary bonding.

FIG. 12 is another view showing the temporary bonding shown in FIG. 11.

FIG. 13 is a perspective view showing a conventional liquid container.

FIG. 14 is a cross-sectional view taken along the lines A-A of FIG. 13 and schematically shown.

[0025] The preferred embodiments of the present invention will be explained hereunder with reference to the accompanying drawings.

[0026] FIG. 1 is a front view showing a liquid container 101 which is one embodiment of the liquid container according to the present invention, FIG. 2 is the perspective view showing the liquid container 101 in an inflating state, and FIG. 3 is a front view showing a delivery unit. Referring to these figures, the liquid container 101 is constituted of a bag-shaped container body 1 formed of flexible film and a pipe-shaped delivery unit 2 usually formed of plastics. The container body 1 is provided with the joining portion 5 at the upper end portion of the body 1, and thus the flange portion 12 of the delivery unit 2 is bonded to the inner surface of the joining

portion 5 of the container body 1. The container body 1 is composed of the two flat portions 3(3a,3b) which constitute front and back walls and the two gusset portions 4(4a,4b) which are folded inwardly to constitute the side walls of the body 1. The body 1 is provided with the respective seal lines which are formed at the peripher-

[0027] The delivery unit 2 has a long and pipe-like shape, which is provided with at least a mouth portion 11 formed at the upper end thereof, and a flange portion 12 formed below the mouth portion 11 to join the delivery unit 2 and the container body 1 with each other. Furthermore, the unit 2 may be provided with other parts, for example, a conduit portion 13 which is formed below the flange portion 12 to improve the function as a straw, a screw portion 14b at the mouth portion to tighten a cap 14a, a supporting flange portion 14c to support the delivery unit on a guide for guiding only delivery unit or the liquid container with the delivery unit, and a hole portion 14d to be a path for the purpose of draining air at the filling time and draining the content in a manner that the liquid container is turned upside down.

[0028] FIG.4 shows a state that the front flat portion 3a is eliminated from the liquid container 101. That is, the delivery unit 2 is disposed at the center of back flat portion 3b, and both gusset portions 4a, 4b are disposed on both sides thereof. As can be understood from FIG.s 2 and 4, the conduit portion 13 of the delivery unit 2 extends inwardly of the container body 1, so that the delivery unit 2 serves as a straw. In the present invention, the inward end portions 15 (the folding lines) are disposed at deep positions close to the center of the container body, because it is necessary to make a whole width W1 of each gusset portion approximately equal to that W2 of the flat portion for the purpose of improving stability in self-standing. Thus, the two inward end portions 15a, 15b faces oppositely with coming close to each other from the both sides of the container body or contacting mutually at the center of the container body in some cases. At this time, a whole area or a partial area of the flange portion 12 is covered with the respective inward end portions 15.

[0029] Therefore, in the liquid container of the present invention, as can be seen in FIG. 5 schematically showing the sectional view of the joining portion 5, the surfaces 16(16a,16b) of the flange portion and inner surface 17(17a,17b) of the flat portion corresponding to the joining portion are fastened mutually through the inward end portions 15(15a,15b) of the folded gusset portions. FIG. 5A illustrates a type of the above liquid container 101 in which both the two inward end portions 15a, 15b of the gusset portions are disposed on the front surface 16a of the flange portion. On the other hand, FIG. 5B illustrates another type in which the inward end portion 15a of the right gusset portion 4a is

disposed on the front surface 16a of the flange portion, and the inward end portion 15b of the left gusset portion 4b is disposed on the back surface 16b thereof.

[0030] In any case of the above two types, the shape of the sectional view of the liquid container becomes approximately regular square when the liquid container has been filled up to improve the ability in self-standing thereof. The type of FIG. 5A is, however, preferable rather than that of FIG. 5B. In a case where the right and left inward end portions of the gusset portions are disposed on the same side (the front or the back side) of the flange portion, the long delivery unit slants in the direction opposite to the side of disposition of the inward end portions of the gusset portions with respect to the flange portion as shown in FIGS. 6A and 6B. Therefore, it is convenient to be utilized as the straw. Because, an user can easily insert the upper opening end of the delivery unit into his mouth in a state wherein he keeps the container upright without slanting the container. Furthermore, the indications, e.g. letters or pictures, printed on the flat portions are emphasized to improve the eye-catching effect. That is, in a case of FIG.s 6A and 6B, the delivery unit 2 is obliqued backwardly to direct the shoulder portion of the front surface of the front flat portion 3a. Therefore, even if the container is put on a relatively low shelf or rack, a consumer can see clearly the indications on the front flat portion.

[0031] There are four lower corner portions at the bottom side of the container body, that is, the front-right, the front-left, the back-right, and the back-left corner portions. As shown in FIGS. 7A and 7B, the oblique seal lines 9 may be formed at the respective lower corner portions as if said lower corner portions were cut off obliquely by the oblique seal lines 9, and subsequently a portion 18 outer than the oblique seal lines 9 and a bottom seal line 8 may be cut off from the container body 1. According to this embodiment in which the bottom portion is formed into a reversed trapezoidal shape, since the bottom portion is flattened easily when the liquid container is put on the table, it has a high ability in self-standing. The oblique seal lines 9 are formed so as to extend from a predetermined point on the side edges of the flat portions to another predetermined point on the lower edge thereof, passing through a position 19 where the folding lines formed in the inward end portions 15 of the gusset portions cross over the bottom seal lines 8. An angle 23 between the oblique seal line 9 and the bottom seal line 8 is usually set at approximately 45 degrees.

[0032] In the liquid container according to the present invention, since the top seal lines 6 where the front and the back flat portions are sealed together by the medium of the gusset portions are apt to break easily as compared with other seal lines and other portions, it is preferable that the width W4 of the top seal lines 6 is enlarged, as shown in FIG. 8, than that W3 of the seal line forming the joining portion 5 to increase the strength of the top seal lines 6. If, in this case, the edge

line of each transitive portion 22 between the lower corner 20 of the joining portion 5 and the lower edge 21 of the top seal line 6 is extended substantially parallel to the axis of the container body, the pressure P of the content in the liquid container does not concentrate on the lower corners 20 of the joining portion 5, and consequently the liquid container is prevented from generation of pinholes and breakages at the lower corners 20 thereof. Therefore, stable quality of the seal portion is ensured at the upper end portion including the joining portion 5 and the top seal lines 6 of the container body 1.

[0033] As to the flexible films for the flat and gusset portions of the container body, for example, the composite film 29 as shown in FIG. 9 is utilized to ensure flexibility of the container body. The composite film 29 is composed by laminating a polyester film 25 to be the outermost layer, a film 26 having a barrier property, a film 27 selected from the group consisting of polyester films or oriented nylon films, and a polyethylene film 28 to be the innermost layer in this order. More concretely, the composite films listed hereinafter are preferably utilized.

- (1) OPET(12 μ m) / Al(9 μ m) / ON(15 μ m) / PE(60-120 μ m)
- (2) OPET(12 μ m) / Al(9 μ m) / OPET(12 μ m) / PE(60-120 μ m)
- (3) OPET(12 μ m) / EVOH(9 μ m) / OPET(12 μ m) / PE(60-120 μ m)

[0034] The meanings of the above abbreviations are as follow and the brackets are the thickness of the films:

- "OPET"; The oriented polyethylene-terephthalate film
- "Al"; The aluminum foil
- "ON"; The oriented nylon film
- "PE"; The polyethylene film
- "EVOH"; The ethylene / vinyl alcohol copolymer film

[0035] Next, the manufacturing method for the above mentioned liquid container will be explained. There is described hereunder regarding the case where the liquid containers are manufactured one by one, but that method can be adapted to continuously manufacturing a plurality of liquid containers. FIG. 10 shows generous operations of one example of the manufacturing method.

[0036] At the beginning, the flexible film is cut into predetermined dimensions to prepare two films to be the flat portions of the container body and two films to be the gusset portions having a width equal to that of the flat portion. The pipe-shaped delivery unit is also prepared at the same time.

[0037] After the preparing, two films for the flat portions are superposed onto and positioned to each other. The films for the gusset portions are folded back to form

the folding lines extending in the longitudinal direction thereof, and subsequently a pair of the folded films for the gusset portions are set between two superposed films for the flat portions so that the outer edges of the films for the gusset portions are positioned at the outer edges of the films for the flat portions and so that a pair of inward end portions which are projected inwardly and faces oppositely are brought into contact with or close to each other.

[0038] After the above positioning, a pair of films for the gusset portions are temporarily bonded to the film for the flat portion by heat sealing at the predetermined positions on the films. The heat sealing is conducted, for example, for one second at 250°C. The temporary bonding stabilizes the positions of the respective films and the delivery unit at the time of the seal work. The side seal lines of the liquid container may be formed on demand before the temporary bonding.

[0039] As shown in FIG. 11, the temporary bonding is usually conducted at the position which will be the upper portion of the container body. When the temporarily bonding is conducted, it is preferable that the heat sealing is carried out while pressing the seal bar onto the flat portion so as to cross over the folding lines of the inward end portions 15, so that both inward end portions 15 of the gusset portions 4 are bonded to one of films for the flat portions. According to this manner, the films for any parts and the delivery unit are positioned easily, because the inward end portions 15 of the gusset portions do not collide with the delivery unit when the delivery unit is put near the gusset portion 4. In particular, in case that the container body is formed previously and thereafter the delivery unit is inserted therein and joined thereto, a pair of gusset portions 4 are located on one side 3a of the two flat portions 3a, 3b near the upper opening of the container body as shown in FIG. 12. Therefore, it is easy to handle the delivery unit and the container body during manufacturing the liquid container.

[0040] As shown in FIG. 11, it is preferable that the seal portion 30 of the temporary bonding has a triangle recess at the center portion on one side thereof, and each edge 31 of the recess crosses obliquely over each folding line of the inward end portions 15 of the films for the gusset portions so that the sealing area of the seal portion 30 is enlarged toward the direction of the side portion of the container body. When the seal portion of the temporary bonding is formed into the above shape having the recess, the strength of the top seal lines of the container body against the various impacts, such as an impact when the container drops down, is increased, and thus the breakage at the top seal lines of the container is remarkably reduced.

[0041] After the temporary bonding, the periphery of the superposed films is sealed to form the container body which opens at the upper end thereof. Subsequently, the conduit portion of the delivery unit is inserted into the inside of the container body through

the upper opening thereof and positioned therein in a state that the flange portion of the delivery unit is set at the upper end portion of the container body so as to be overlapped with both inward end portions of the pair of films for the gusset portions. Then, the end portion of the upper opening of the container body and the flange portion of the delivery unit are sealed together to complete the liquid container.

[0042] As to the above process, the order of respective steps can be optionally changed, as long as two films for the gusset portions are temporarily bonded before the positioning of the delivery unit. For example, in the above case, the delivery unit is disposed in the container body after formation of the container body. However, the following operation may be conducted. That is, at first, the two films for gusset portions are positioned on one film for the flat portion to be temporarily bonded thereto, and secondly the delivery unit and another film for the flat portion are positioned thereon, and finally the whole periphery of the films is sealed.

[0043] As shown in FIG. 2, thus obtained liquid container has an excellent stability in self-standing when it is displayed or put on the shelf, because the width W1 of each gusset portion is made approximately equal to that W2 of each flat portion so that the sectional view of the container body has an approximately regularly square shape. Therefore, the liquid container according to the present invention is utilized as the container for the beverages, needless to say, also utilized for various things such as the seasonings, the sauces and so forth instead of the glass bottles and plastic containers.

[0044] Furthermore, when the sectional view of the container body is approximately regularly square, the liquid container not only has the excellent stability in self-standing but also can ensure a large inner space to store the content while reducing the surface area of the container body. Therefore, the liquid container according to the present invention has no bulky shape irrespective of its relatively large volume.

Claims

1. A container (101) comprising a container body (1) having a mouth opening, said container body (1) being formed of a flexible material (29) and comprising two wall portions (3a, 3b), forming front and back walls, interconnected by two folded gusset portions (4a, 4b) forming side walls, and a delivery unit (2) provided in said mouth opening and having a flange portion (12) which acts as a joining portion between the delivery unit and the container body, wherein the mouth opening of said container body (1) is sealed along top seal lines (6) which extend from the joining portion outwardly, the container being characterised in that inward end portions (15a, 15b) of said gusset portions (4a, 4b) project inwardly of the container body (1) and are interposed between the flange portion (12) and the wall portions (3a, 3b) at the joining portion.
2. A liquid container as claimed in Claim 1, wherein said delivery unit (2) comprises a conduit portion (13) which is formed below the flange portion (12) and extends inwardly of the container body.
3. A liquid container as claimed in Claim 1 or Claim 2, wherein both of said inward end portions (15a, 15b) of the two gusset portions (4a, 4b) are disposed on the same side of the flange portion.
4. A liquid container as claimed in any preceding claim, wherein said container body (1) is sealed at each of four corner portions of a bottom portion thereof along each of four oblique seal lines (9), which extends from a side edge of the wall portions to a bottom edge thereof and passes through a position (19) where a folding line of the gusset portion and a bottom seal line (8) of the container body cross each other, and is cut off in a trapezoidal shape at an outside portion (18) beyond each oblique seal line (9) and the bottom seal line (8).
5. A liquid container as claimed in any preceding claim, wherein said top seal lines (6) seal the upper end portion of the container body (1), and said top seal lines (6) have a width (W4) larger than that (W3) of a seal line forming the joining portion, an edge line of each transitive portion (22) between a lower corner (20) of the joining portion and a lower edge (21) of the top seal line (6) extending substantially parallel to an axis of the container body.
6. A liquid container as claimed in any preceding claim, wherein said flexible material is a composite film (29) formed by laminating a polyester film (25) to be an outermost layer, a film (26) having a barrier property, a film (27) selected from a group consisting of polyester films or oriented nylon films, and a polyethylene film (28) to be an innermost layer.
7. A method of manufacturing a container having a flexible container body (1) and a delivery unit (2), the method comprising the steps of:
 - folding and positioning two films for gusset portions (4a, 4b) of a container body between two superposed films for wall portions (3a, 3b) of the container body,
 - positioning a delivery unit (2) between said two superposed films for the wall portions such that the delivery unit is positioned at a mouth opening of the container body, and
 - securing the films and the delivery unit together at predetermined portions thereof to form the container body and seal the mouth opening, wherein each inner end portion (15a, 15b) at

which a folding line is formed, of each film for a gusset portion is interposed between a flange portion (12) of the delivery unit (2) and the film for a wall portion (3a, 3b).

8. A method as claimed in Claim 7, wherein each of the films for the gusset portions is temporarily secured to the films for the wall portion before positioning the delivery unit (2).
9. A method as claimed in Claim 8, wherein each of said two folded and positioned films for the gusset portions (4a, 4b) is temporarily secured to the film for the wall portion by heat sealing in a manner of pressing a seal bar onto the films so as to cross over the folding lines of the films for the gusset portions at an upper portion of the container body.
10. A method as claimed in Claim 9, wherein said seal bar forms a seal portion (30) which has a triangle recess at its centre portion on one side thereof, each edge (31) of the recess crossing obliquely over the folding lines of the films for the gusset portions so that a sealing area of the seal portion (30) is enlarged toward a direction of a side portion of the container body.

Patentansprüche

1. Behälter (101) mit einem Behälterkörper (1) mit einer Mundöffnung, wobei der Behälterkörper (1) aus einem flexiblen Material (29) gebildet ist und zwei Wandabschnitte (3a,3b), die Vorder- und Rückwände bilden, die durch zwei, Seitenwände bildende, gefaltete Anschlußabschnitte (4a,4b) miteinander verbunden sind, und eine Zufuhreinheit (2) aufweist, die in der Mundöffnung vorgesehen ist und einen Flanschabschnitt (12) aufweist, welcher als Verbindungsabschnitt zwischen der Zufuhreinheit und dem Behälterkörper funktioniert, wobei die Mundöffnung des Behälterkörpers (1) entlang oberen Dichtungslinien (6), die sich von dem Verbindungsabschnitt nach außen erstrecken, abgedichtet ist, wobei der Behälter dadurch gekennzeichnet ist, daß nach innen gerichtete Endabschnitte (15a,15b) der Anschlußabschnitte (4a,4b) nach Innen in den Behälterkörper (1) vorstehen und zwischen dem Flanschabschnitt (12) und den Wandabschnitten (3a,3b) an dem Verbindungsabschnitt angeordnet sind.
2. Flüssigkeitsbehälter nach Anspruch 1, wobei die Zufuhreinheit (2) einen Leitungsabschnitt (13) aufweist, welcher unterhalb des Flanschabschnitts (12) gebildet ist und sich nach innen in den Behälterkörper erstreckt.
3. Flüssigkeitsbehälter nach Anspruch 1 oder 2,

wobei beide nach innen gerichteten Endabschnitte (15a,15b) der zwei Anschlußabschnitte (4a,4b) auf derselben Seite des Flanschabschnitts vorgesehen sind.

4. Flüssigkeitsbehälter nach einem der vorhergehenden Ansprüche, wobei der Behälterkörper (1) an jedem von vier Eckabschnitten eines Bodenabschnitts desselben entlang jeder von vier schrägen Dichtungslinien (9) abgedichtet ist, welche sich von einem Seitenrand der Wandabschnitte zu einem Bodenrand davon erstreckt und durch eine Position (19) hindurchgeht, in welcher eine Faltlinie des Anschlußabschnitts und eine Boden-Abdichtungslinie (8) des Behälterkörpers sich kreuzen, und trapezförmig an einem Außenabschnitt (18) hinter jeder schrägen Dichtungslinie (9) und der Boden-Dichtungslinie (8) abgeschnitten ist.
5. Flüssigkeitsbehälter nach einem der vorhergehenden Ansprüche, wobei die oberen Dichtungslinien (6) den oberen Endabschnitt des Behälterkörpers (1) abdichten und die oberen Dichtungslinien (6) eine Breite (W4) haben, die größer ist als diejenige (W3) einer Dichtungslinie, die den Verbindungsabschnitt bildet, wobei eine Randlinie jedes Übergangsabschnitts (22) zwischen einer unteren Ecke (20) des Verbindungsabschnitts und einem unteren Rand (21) der oberen Dichtungslinie (6) sich im wesentlichen parallel zu einer Achse des Behälterkörpers erstreckt.
6. Flüssigkeitsbehälter nach einem der vorhergehenden Ansprüche, wobei das flexible Material ein Verbundfilm (29) ist, welcher durch Laminieren eines Polyesterfilms (25) als äußerste Schicht, eines Films (26) mit Barriereeigenschaft, eines Films (27), welcher aus einer Gruppe bestehend aus Polyesterfilmen oder Filmen aus ausgerichtetem Nylon, und eines Polyethylenfilms (28) als innerste Schicht, gebildet ist.
7. Verfahren zur Herstellung eines Behälters mit einem flexiblen Behälterkörper (1) und einer Zufuhreinheit (2), wobei das Verfahren die folgenden Schritte aufweist: Falten und Positionieren von zwei Filmen für Anschlußabschnitte (4a,4b) eines Behälterkörpers zwischen zwei einander überlagernden Filmen für Wandabschnitte (3a,3b) des Behälterkörpers, Positionieren einer Zufuhreinheit (2) zwischen zwei einander überlagernde Filme für die Wandabschnitte, so daß die Zufuhreinheit an einer Mundöffnung des Behälterkörpers angeordnet ist, und Sichern der Filme und der Zufuhreinheit miteinander an vorbestimmten Abschnitten davon, um den Behälterkörper zu bilden und die Mundöffnung abzudichten, wobei jeder innere Endabschnitt (15a,15b), an welchem eine Faltlinie gebildet ist,

jedes Films für einen Anschlußabschnitt zwischen einem Flanschabschnitt (12) der Zufuhreinheit (2) und dem Film für einen Wandabschnitt (3a,3b) angeordnet wird.

8. Verfahren nach Anspruch 7, wobei jeder der Filme für die Anschlußabschnitte vorübergehend an den Filmen für den wandabschnitt vor Positionieren der Zufuhreinheit (2) befestigt wird.

9. Verfahren nach Anspruch 8, wobei jeder der zwei gefalteten und angeordneten Filme für die Anschlußabschnitte (4a,4b) vorübergehend an dem Film für den Wandabschnitt durch Heißsiegeln durch Drücken einer Siegelungsstange auf die Filme, so daß sich die Faltlinien der Filme für die Anschlußabschnitte an einem oberen Abschnitt des Behälterkörpers kreuzen, befestigt wird.

10. Verfahren nach Anspruch 9, wobei die Siegelungsstange einen Dichtungsabschnitt (30) bildet, welcher auf einer Seite eine dreieckige Aussparung an seinem mittleren Abschnitt aufweist, wobei sich alle Ränder (31) der Aussparung schräg über den Faltlinien der Filme für die Anschlußabschnitte kreuzen, so daß eine Dichtungsfläche des Dichtungsabschnitts (30) in Richtung eines Seitenabschnitts des Behälterkörpers vergrößert ist.

Revendications

1. Un conteneur (101) comprenant un corps de conteneur (1) ayant une ouverture d'embouchure, ledit corps de conteneur (1) étant constitué d'un matériau flexible (29) et comprenant deux parties de paroi (3a, 3b) formant des parois avant et arrière, interconnectées par deux parties de soufflet (4a, 4b) pliées formant des parois latérales, et une unité de distribution (2) prévue dans ladite ouverture d'embouchure et ayant une partie bride (12) agissant comme partie de jonction entre l'unité de distribution et le corps de conteneur, dans lequel l'ouverture d'embouchure dudit corps de conteneur (1) est scellée sur des lignes de scellage supérieures (6) s'étendant depuis la partie de jonction vers l'extérieur, le conteneur étant caractérisé en ce que des parties d'extrémité intérieures (15a, 15b) desdites parties de soufflet (4a, 4b) font saillie vers l'intérieur du conteneur (1) et sont interposées entre la partie de bride (12) et les parties de paroi (3a, 3b) au niveau de la partie de jonction.

2. Un conteneur à liquide selon la revendication 1, dans lequel ladite unité de distribution (2) comprend une partie conduit (13) formée au-dessous de la partie bride (12) et s'étendant vers l'intérieur du corps de conteneur.

3. Un conteneur à liquide selon la revendication 1 ou 2, dans lequel les deux dites parties d'extrémité intérieures (15a, 15b) des deux parties de soufflet (4a, 4b) sont disposées du même côté de la partie bride (4).

4. Un conteneur à liquide selon l'une quelconque des revendications précédentes, dans lequel ledit corps de conteneur (1) est scellé, à chacune des quatre parties d'angle d'une partie inférieure de celui-ci, sur chacune de quatre lignes de scellage (9) obliques s'étendant depuis un bord latéral des parties de paroi vers un bord inférieur de celles-ci et passant par une position (19) à laquelle une ligne de pliage de la partie de soufflet et une ligne de scellage inférieure (8) du corps de conteneur se croisent et est découpé sous une forme trapézoïdale au niveau d'une partie extérieure (18) au-delà de chaque ligne de scellage oblique (9) et de la ligne de scellage inférieure (8).

5. Un conteneur à liquide selon l'une quelconque des revendications précédentes, dans lequel lesdites lignes de scellage supérieures (6) scellent la partie d'extrémité supérieure du corps de conteneur (1) et lesdites lignes de scellage supérieures (6) ont une largeur (W4) supérieures à (W3) d'une ligne de scellage formant la partie de jonction, une ligne de bordure de chaque partie de transition (22), entre un angle inférieur (20) de la partie de jonction et une bordure inférieure (21) de la ligne de scellage supérieure (6), s'étendant sensiblement parallèlement à un axe du corps de conteneur.

6. Un conteneur à liquide selon l'une quelconque des revendications précédentes, dans lequel ledit matériau flexible est un film composite (29) constitué par laminage d'un film polyester (25) pour former la couche la plus extérieure, d'un film (26) ayant une propriété de barrière, d'un film (27) sélectionné dans le groupe composé des films polyester ou des films à Nylon orienté, et d'un film de polyéthylène (28) devant être la couche la plus intérieure.

7. Un procédé de fabrication d'un conteneur ayant un corps de conteneur (1) flexible et une unité de distribution (2), le procédé comprenant les étapes consistant à :

plier et positionner deux films, destinés à des parties de soufflet (4a, 4b) d'un corps de conteneur, entre deux films superposés destinés à des parties de paroi (3a, 3b) du corps de conteneur, positionner une unité de distribution (2) entre lesdits deux films superposés destinés aux parties de paroi, de manière que l'unité de distribution soit positionnée au niveau de l'ouver-

ture d'embouchure du corps de conteneur, et
fixer les films et l'unité de distribution ensemble
en des parties prédéterminées de celle-ci pour
former le corps de conteneur et sceller l'ouver-
ture d'embouchure, 5
dans lequel chaque partie d'extrémité inté-
rieure (15a, 15b), sur laquelle une ligne de
pliage est formée de chaque film destiné à une
partie de soufflet, est interposée entre une par-
tie formant bride (12) de l'unité de distribution 10
(12) et le film destiné à une partie de paroi (3a,
3b).

8. Un procédé selon la revendication 7, dans lequel 15
chacun des films destinés aux parties de soufflet
est temporairement fixé aux films destinés à la par-
tie de paroi avant le positionnement de l'unité de
distribution (2).
9. Un procédé selon la revendication 8, dans lequel 20
chacun desdits deux films pliés et positionnés pour
les parties de soufflet (4a, 4b) est fixé temporairement
au film destiné à la partie de paroi, par un
scellage à chaud, d'une manière dans laquelle une
barre de scellage est pressée sur les films pour 25
croiser les lignes de pliage des films destinées aux
parties de soufflet, sur une partie supérieure du
corps de conteneur.
10. Un procédé selon la revendication 9, dans lequel 30
ladite barre de scellage constitue une partie de
scellage (30) ayant une cavité triangulaire en sa
partie centrale sur une de ses faces, chaque bord
(31) de la cavité croisant obliquement les lignes de
pliage des films destinées aux parties de soufflet, si 35
bien qu'une zone de scellage de la partie de scel-
lage (30) est élargie en direction d'une partie laté-
rale du corps de conteneur.

40

45

50

55

FIG. 1

101

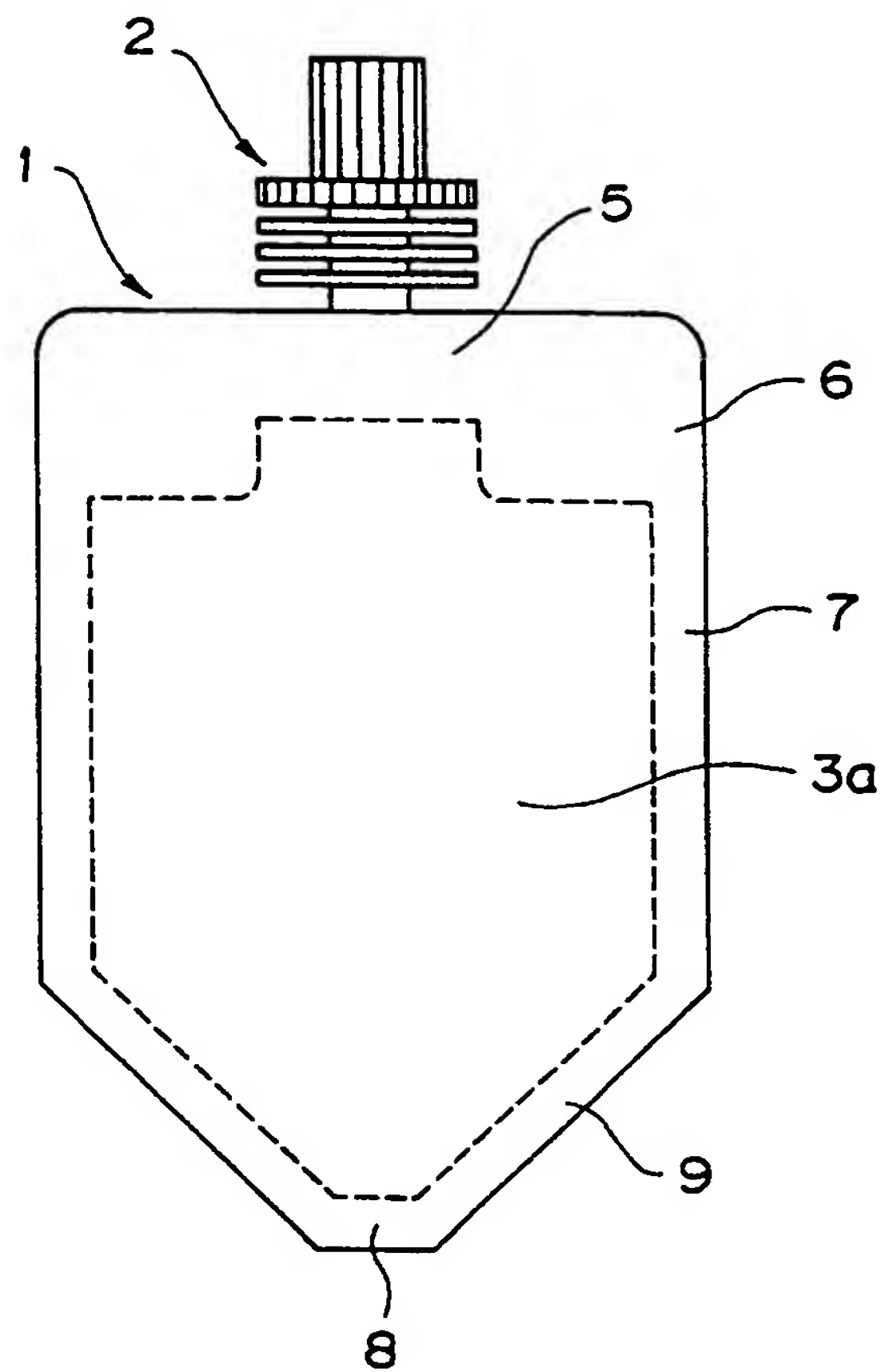


FIG. 2

101

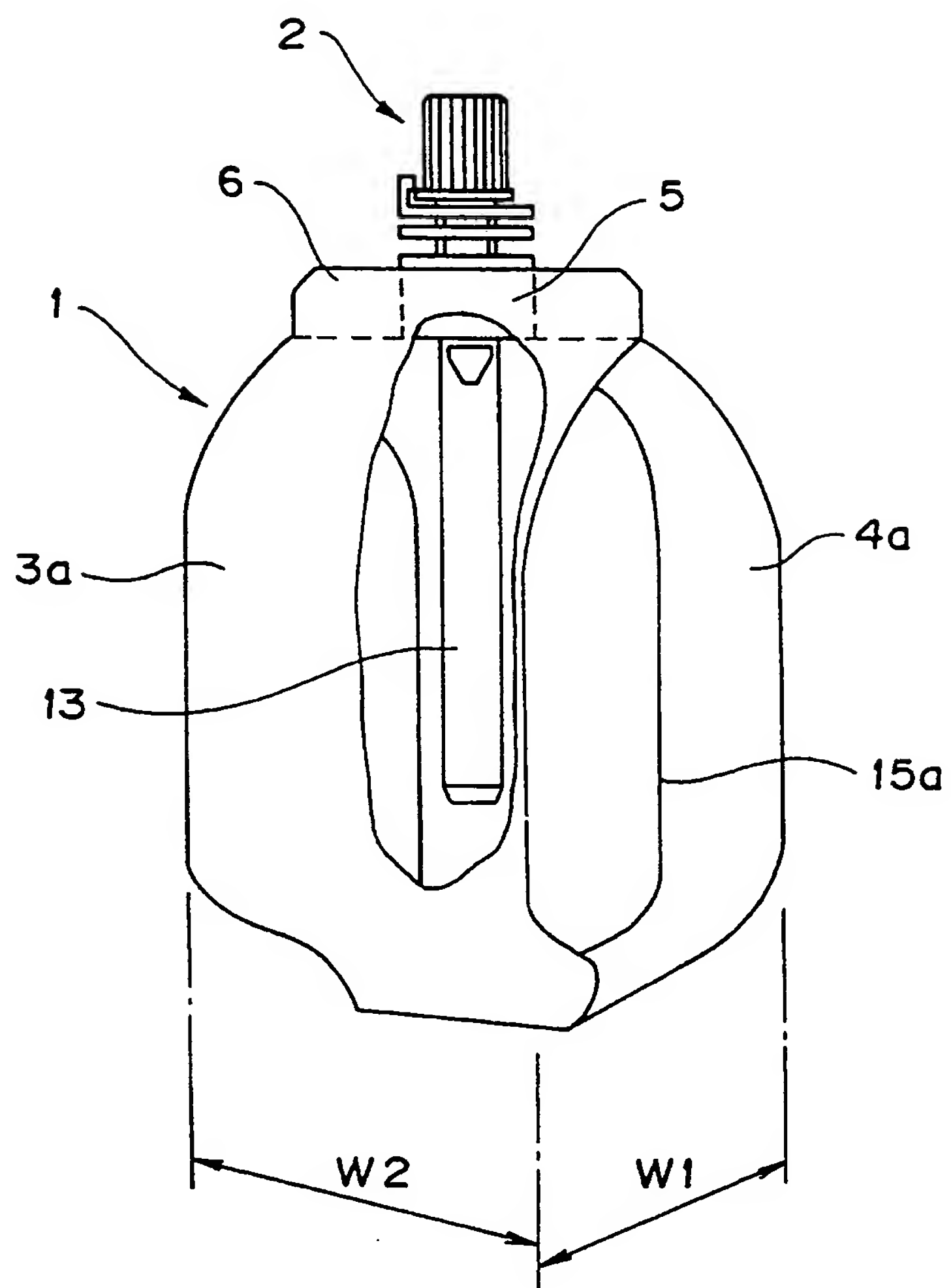


FIG. 3

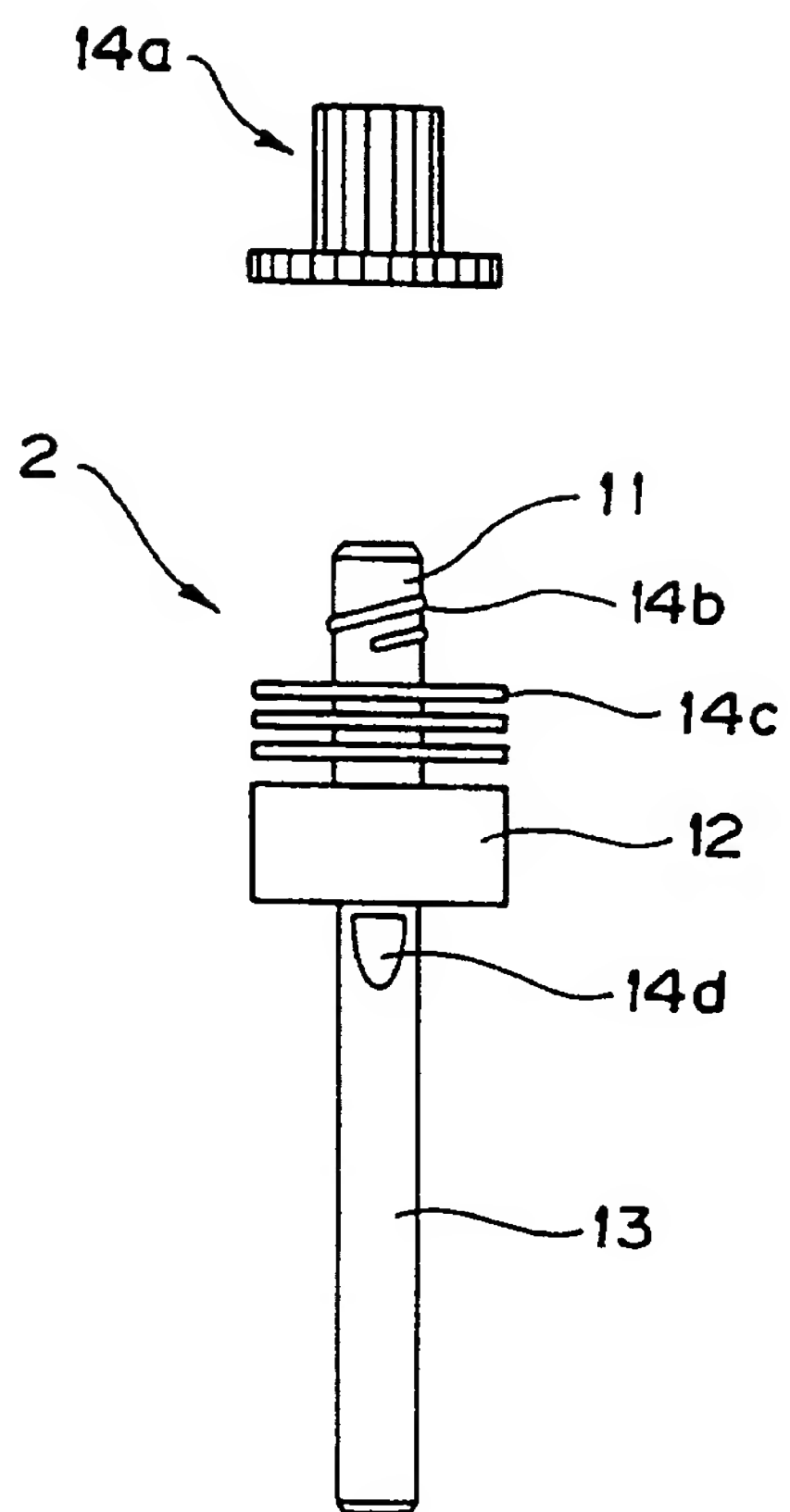


FIG. 4

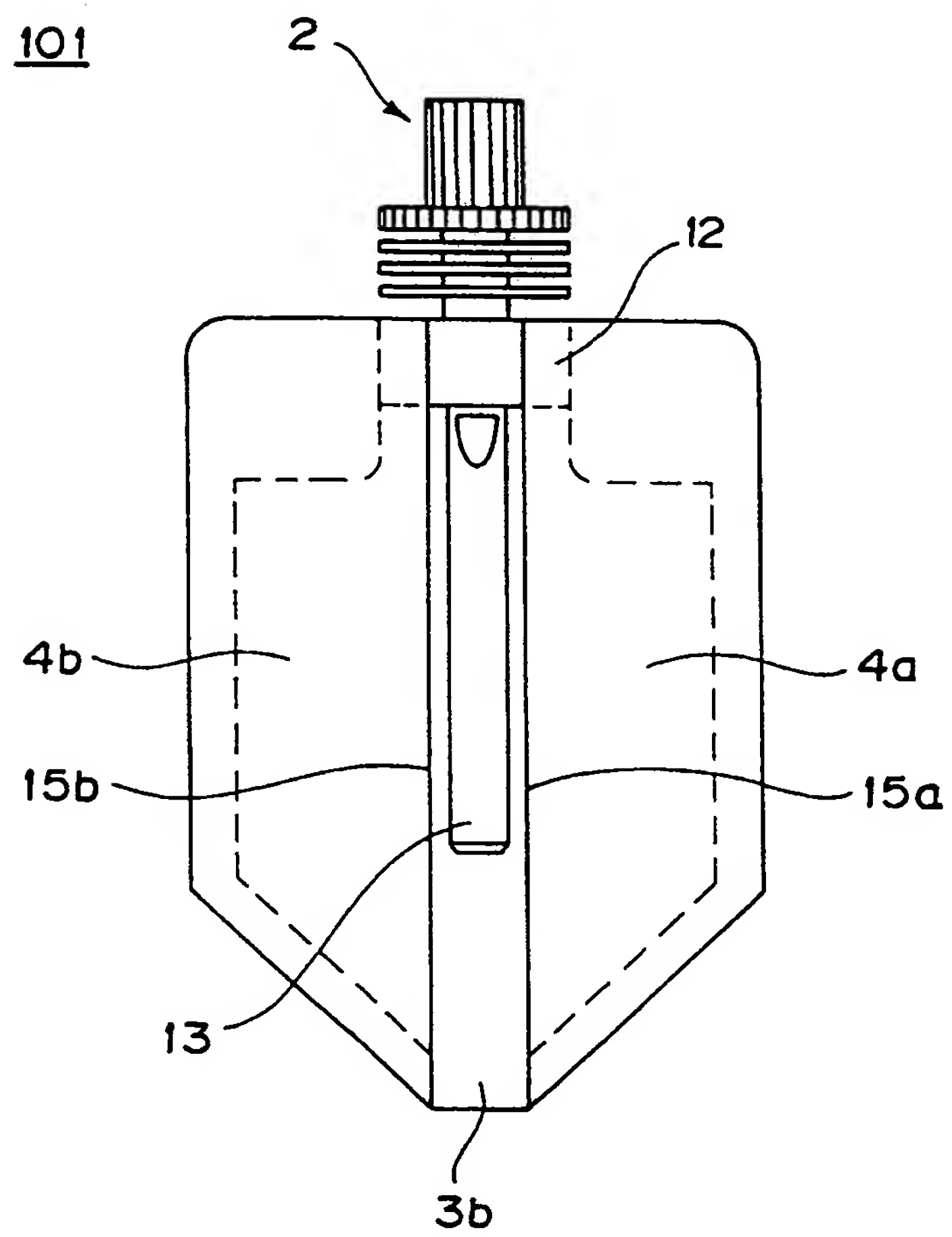


FIG. 5A

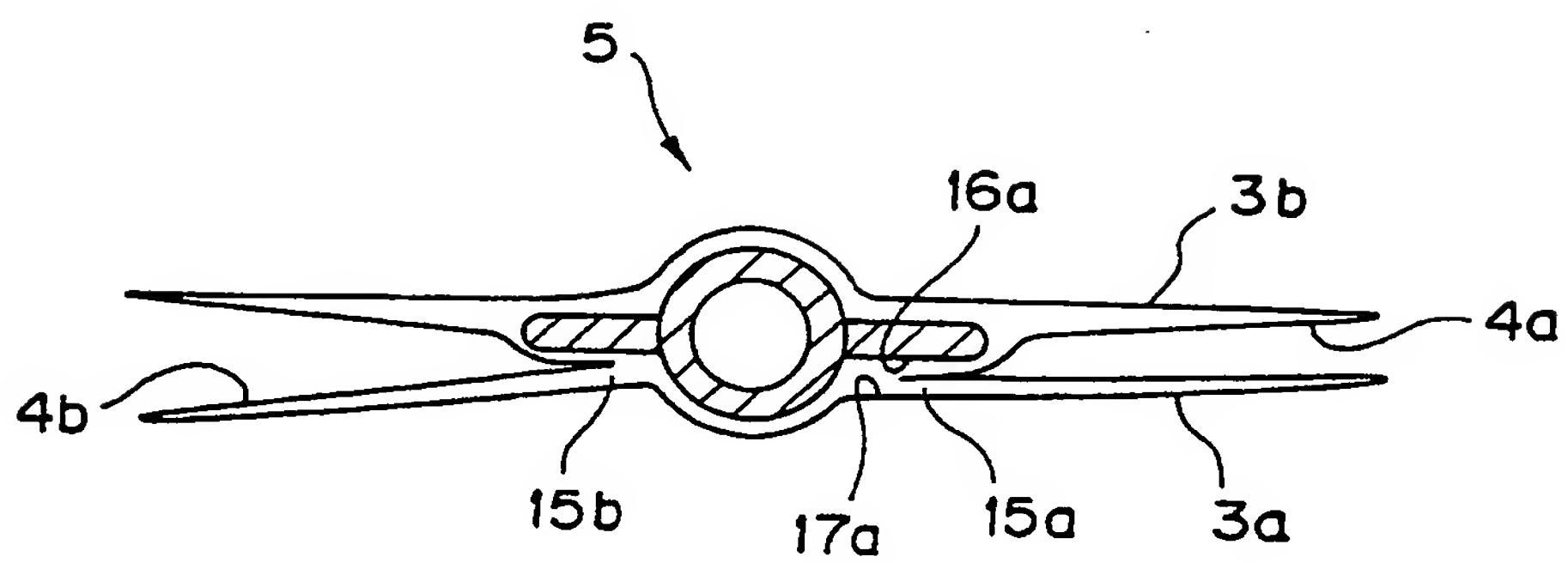


FIG. 5B

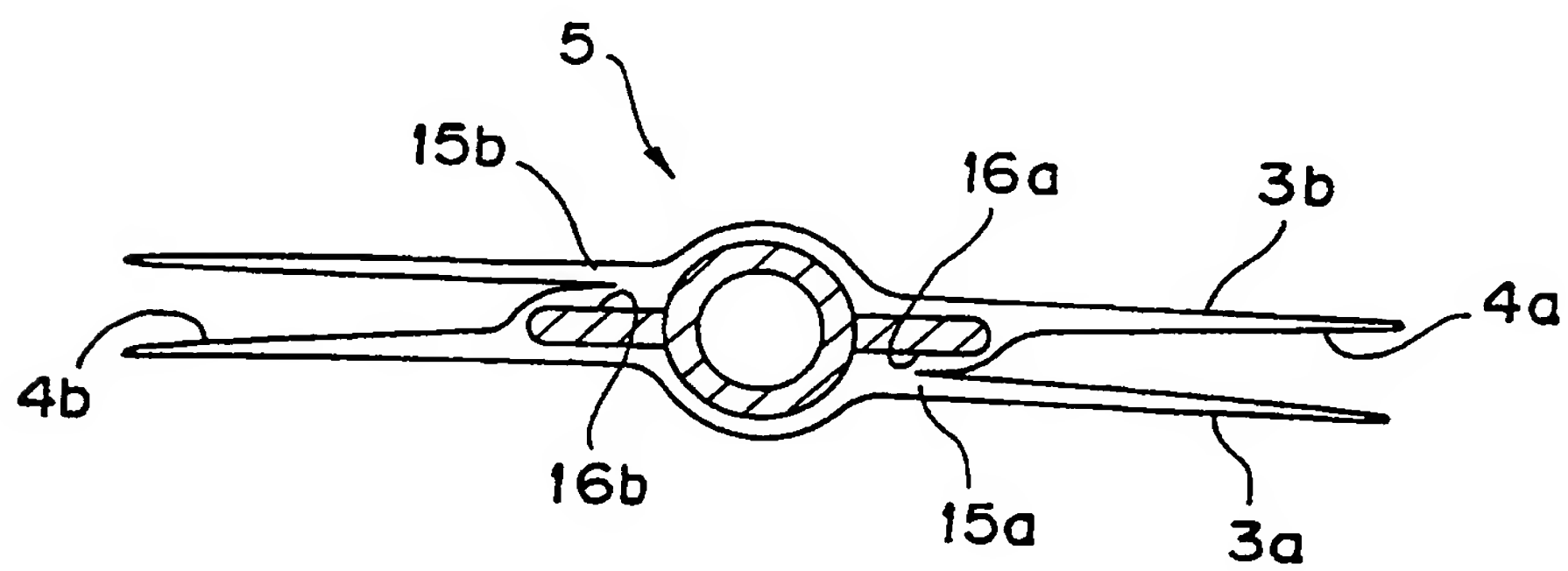


FIG. 6A

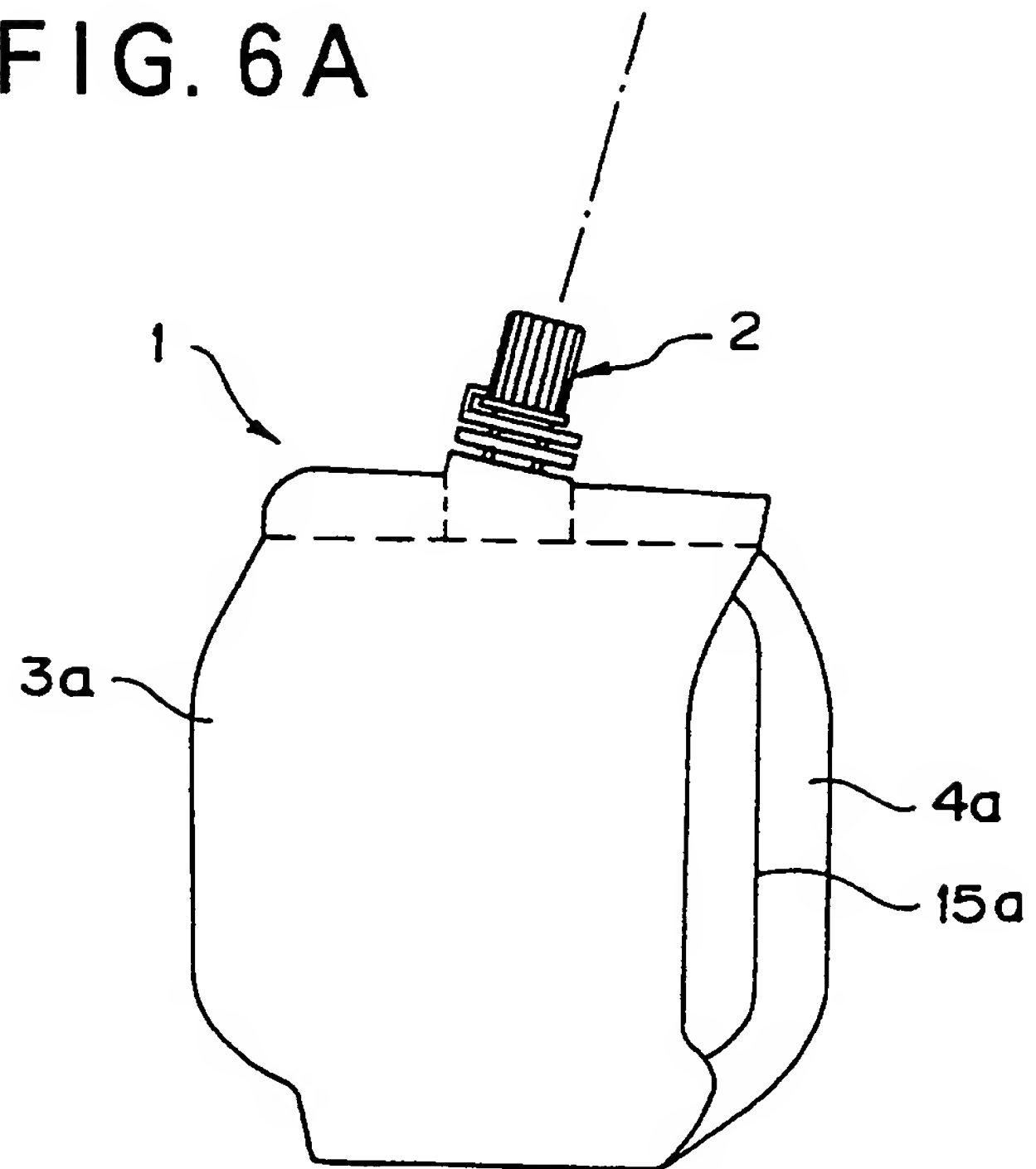


FIG. 6B

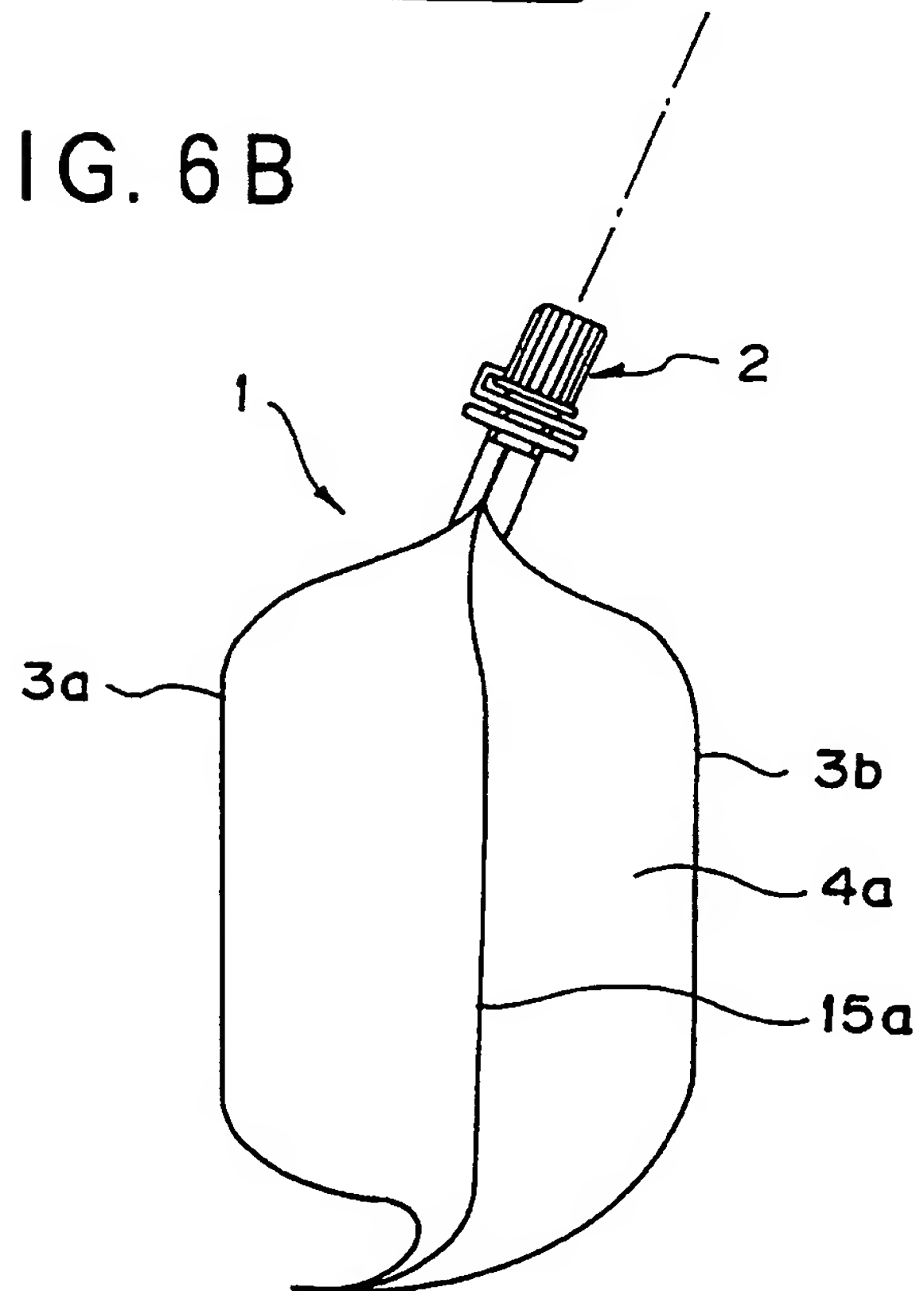


FIG. 7A

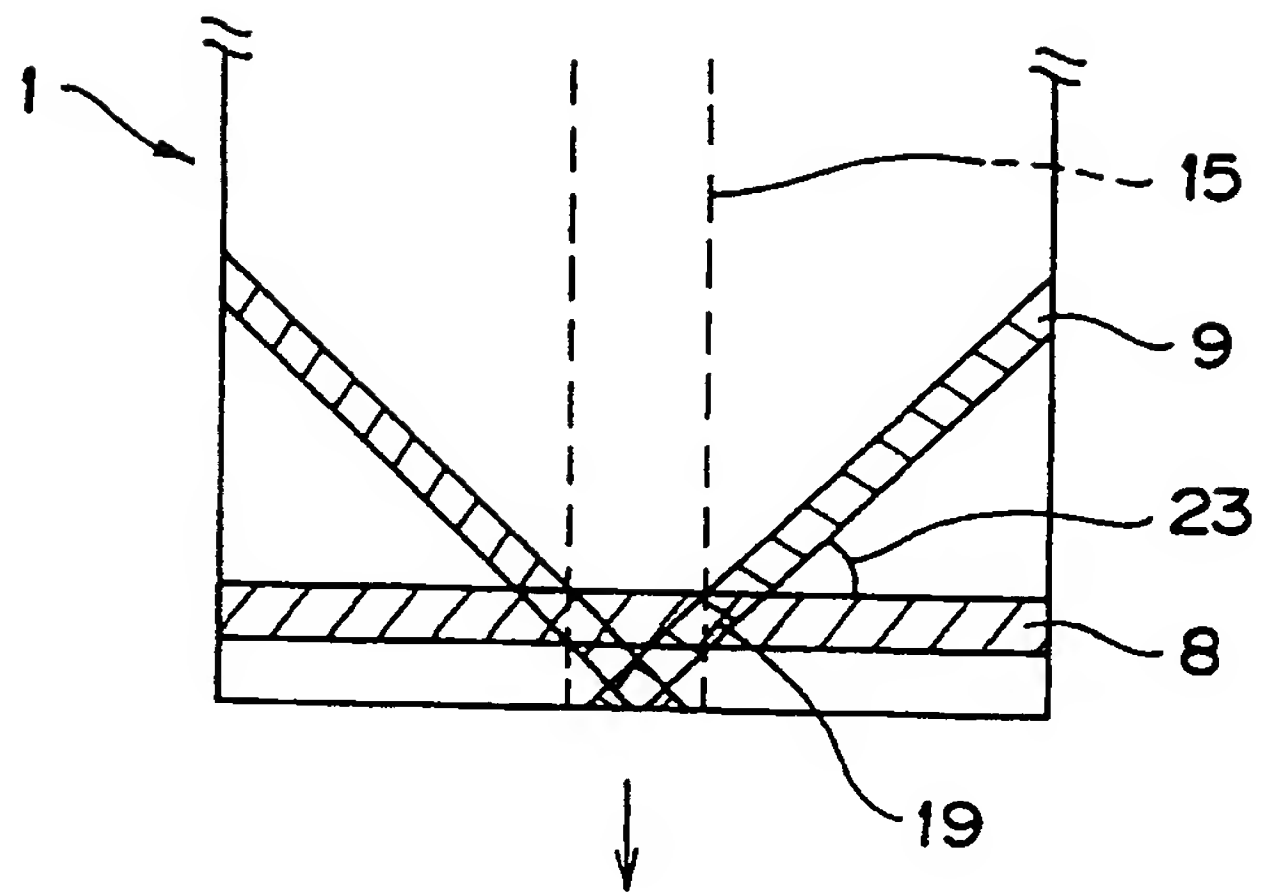


FIG. 7B

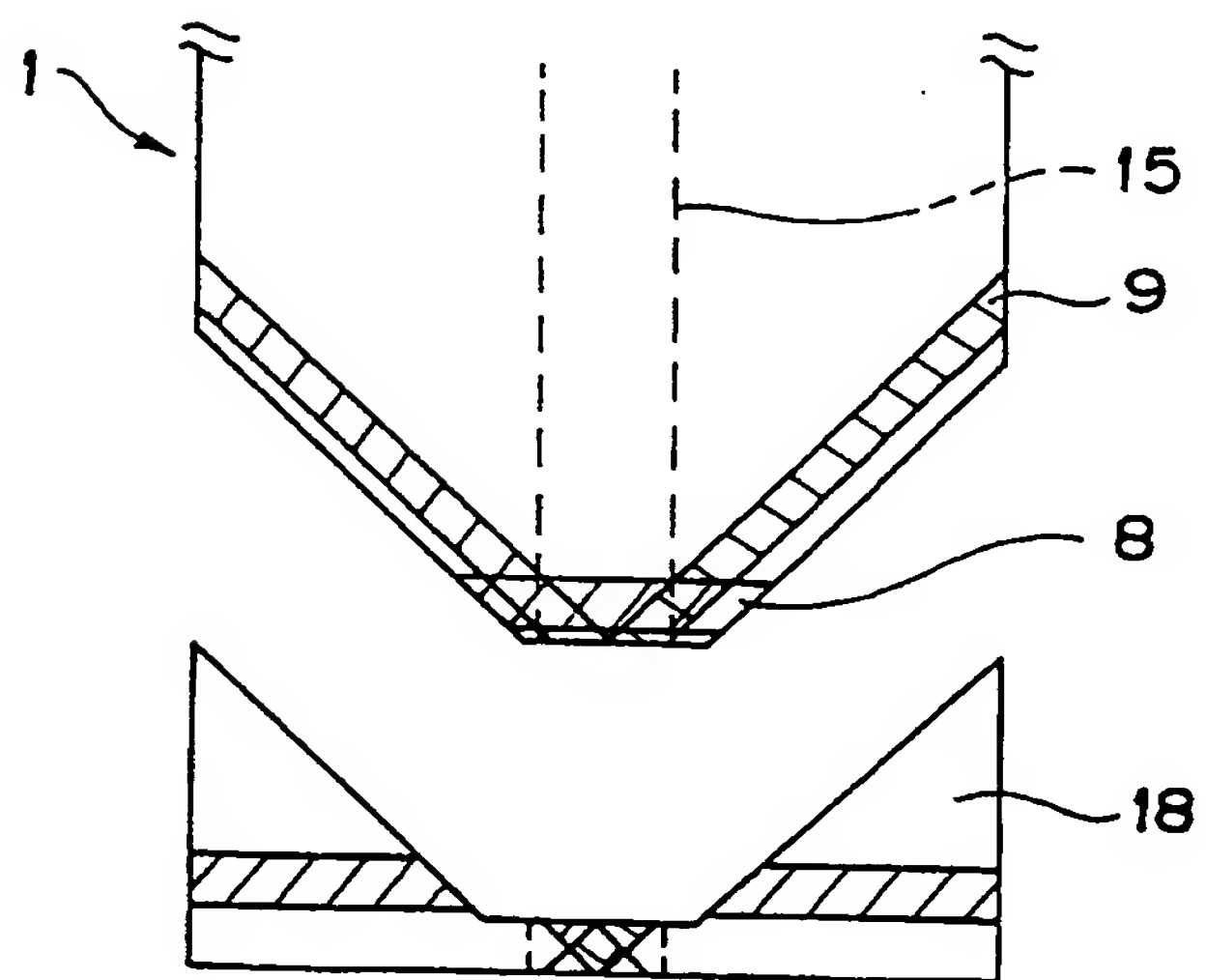


FIG. 8

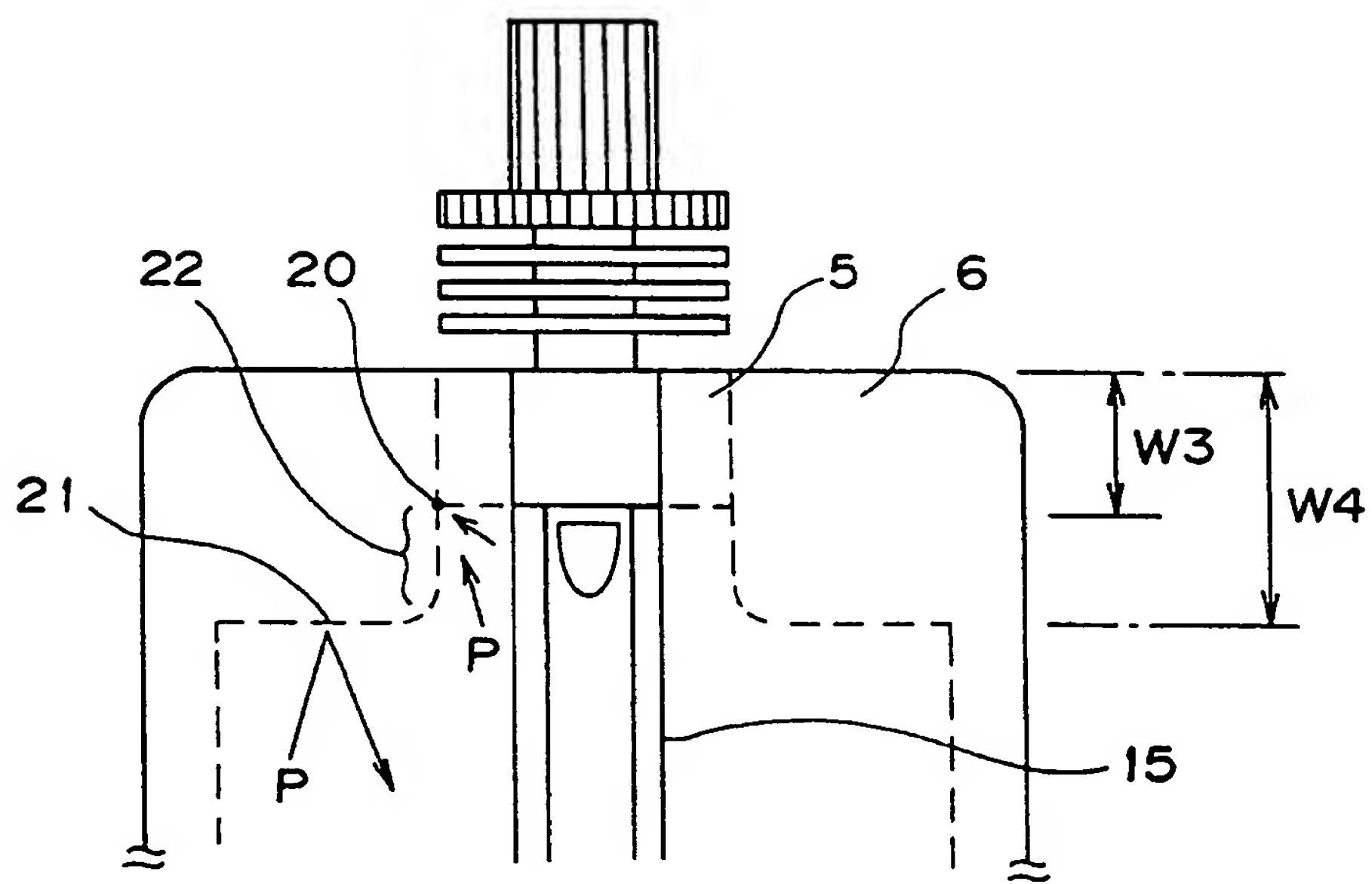


FIG. 9

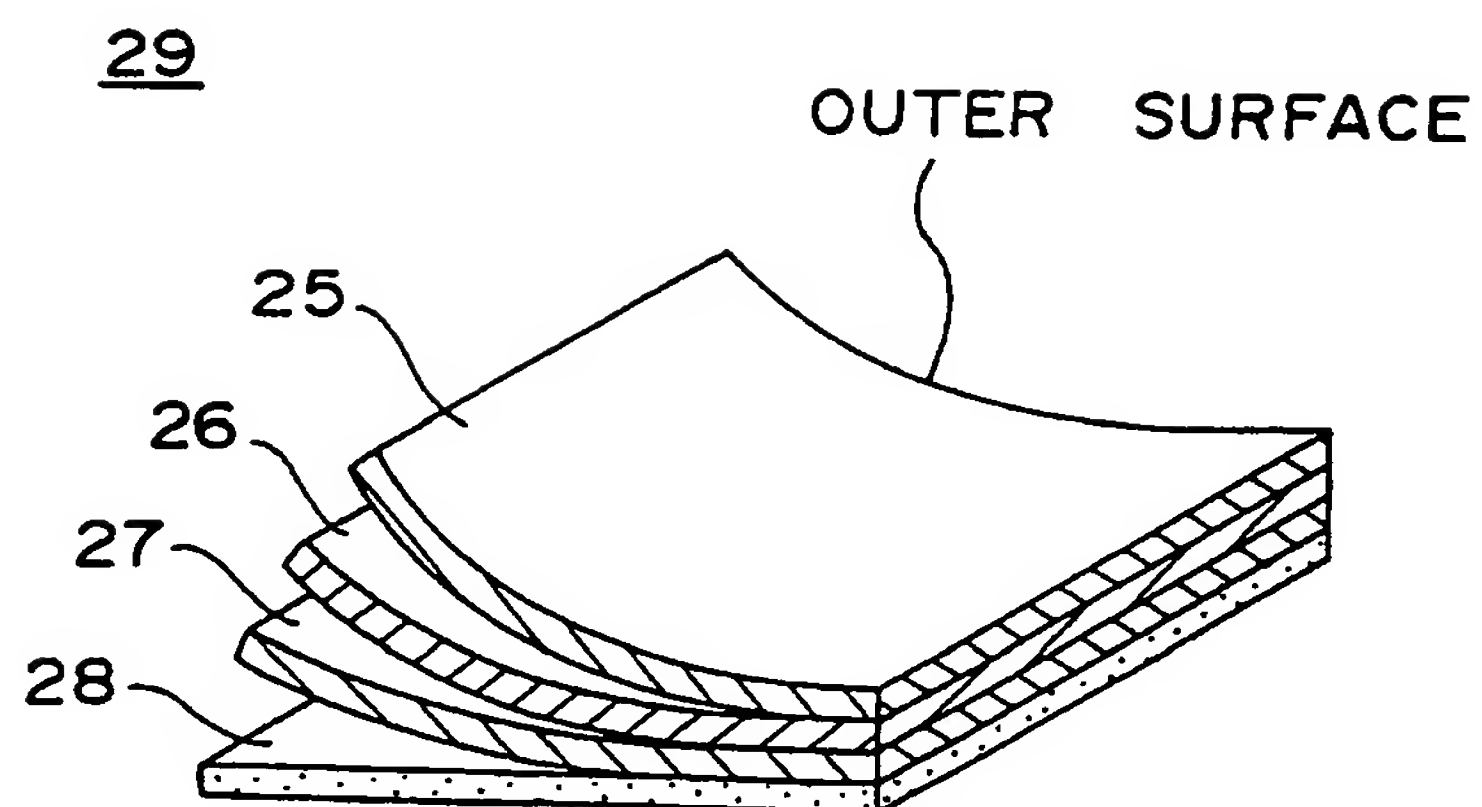


FIG. 10

PROCESS OF MANUFACTURING LIQUID CONTAINER

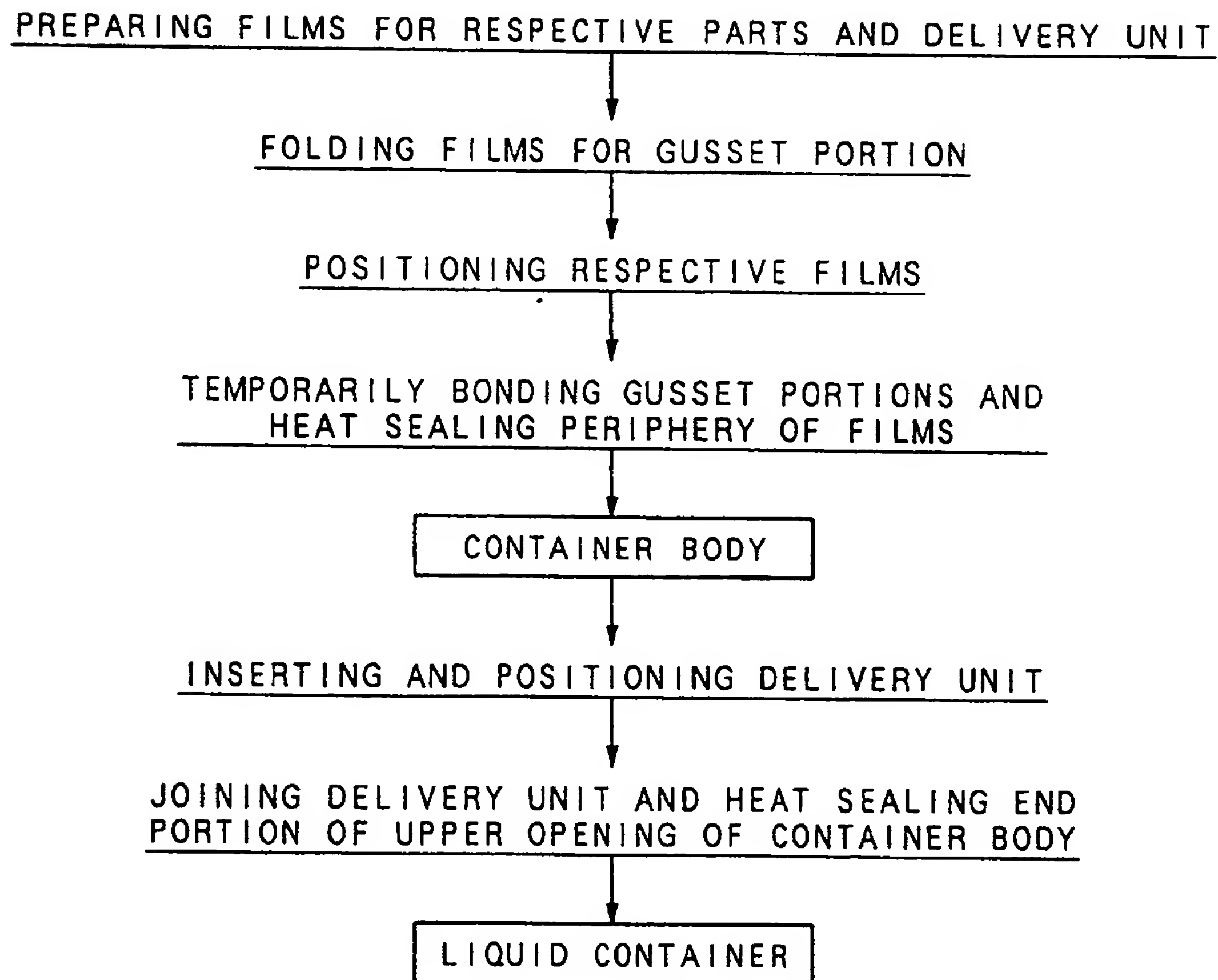


FIG. 11

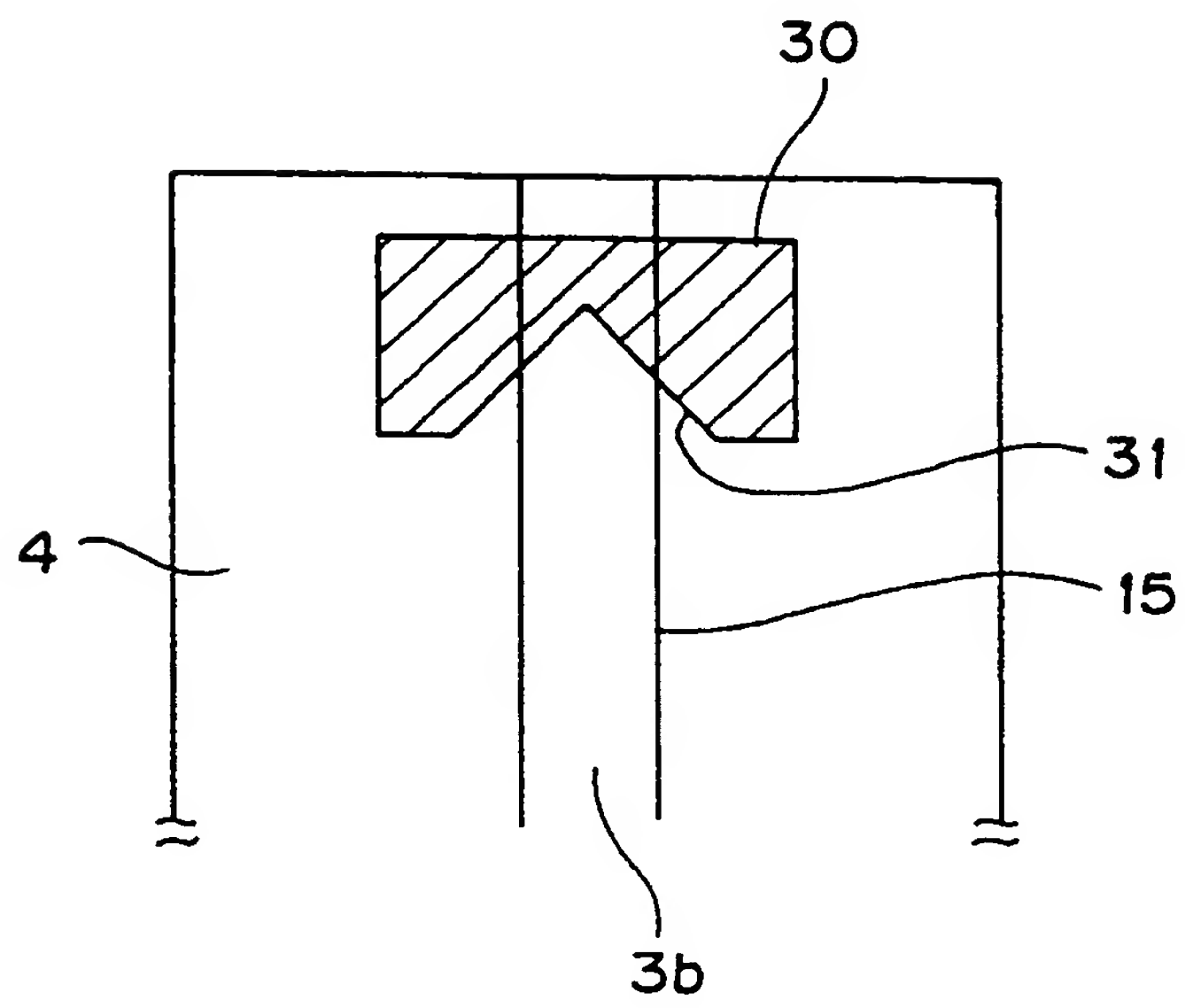


FIG. 12

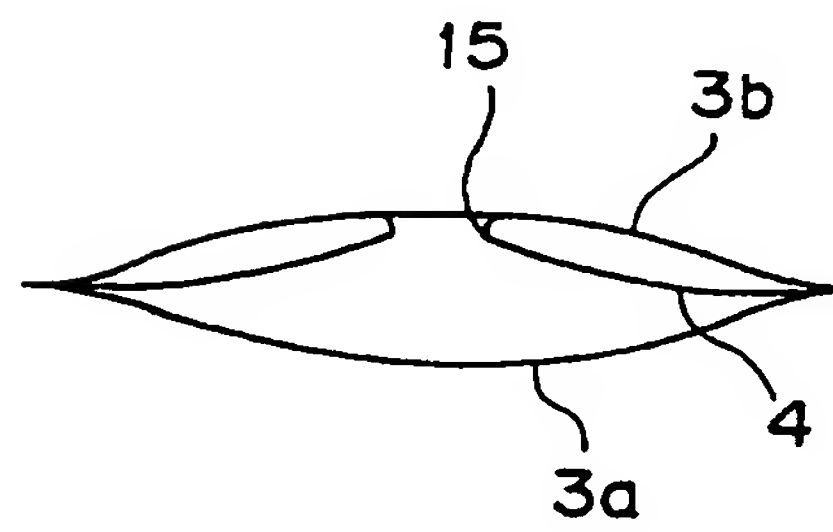


FIG. 13
PRIOR ART

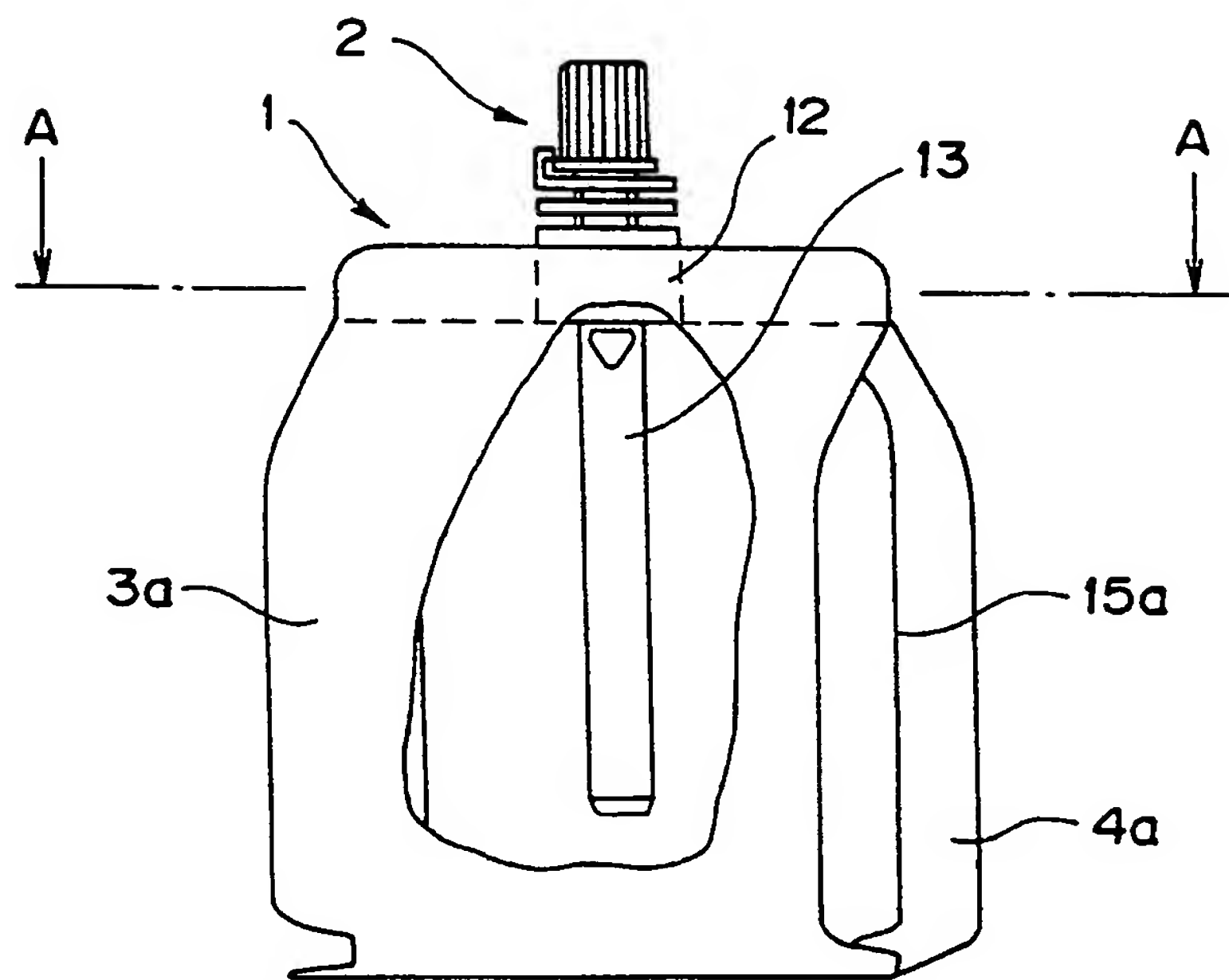


FIG.14
PRIOR ART

A-A CROSS SECTION

